SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SUBSURFACE UTILITY ENGINEERING CADD DEVELOPMENT MANUAL

REVISED 2011

INTRODUCTION

This document outlines and describes the Standard Operating Procedures for Subsurface Utility Engineering (SUE) CADD file(s) preparation as required by the South Carolina Department of Transportation. This document also includes General Utility Locating Guidelines to insure uniformity of data collection quality and consistency.

For guidelines on Surveying SUE projects, please refer to the **SCDOT PRECONSTRUCTION SURVEY MANUAL.**

Please direct any questions concerning the Departments SUE Program to the acting SUE Engineer at (803) 737-2047.

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SECTION 1 – SUE CAD DEVELOPMENT

1.0 GENERAL GUIDELINES

SUE project data will be submitted in CADD and plotted format. All files will be developed using border sheets, Microstation resource files, and examples provided by the Department and available online at www.scdot.org/doing/suefiles . All CADD files will be submitted in the current version of Microstation.

1.01 PROVIDED CAD FILES

The following is a list and brief description of the files provided by the Department and should be employed when producing project files:

File Name	Description
01scdot_sue_tst.dgn	Title & Utility Reference sheet for SUE plans
02scdot_sue_lgd.dgn	Legend for symbols and example of line formats
03scdot_sue_bdr.dgn	Border sheet for SUE planimetry plots
04scdot_sue_upd.dgn	Utility & Pole Data Sheet (Embedded Excel Spreadsheet)
05scdot_sue_upd(2).dgn	Utility & Pole Data Sheet
06scdot_sue_thd.dgn	Test Hole Data Sheet (embedded Excel Spreadsheet)

1.02 PROVIDED CAD RESOURCE FILES

The Department provides resource files that contain the standard line-styles, color table, font library, level library, and CADD seed files which are listed and described below:

Resource File	Description
LSTYLE.rsc	SCDOT Standard Line Styles
ROAD.tbl	SCDOT Standard Color Table
FONT.rsc	SCDOT Standard Font Library
LEVEL.lib	SCDOT Standard Level Library
SEED.dgn	SCDOT Standard CADD Seed File*
SCDOTV8.smd	SCDOT Standard Geopak smd file
RoadDesignLN.dgnlib	SCDOT Standard Level Library
08scdot_sue_cel.cel	SCDOT SUE & Utility Coordination Cell Library
09scdot_sue_txt.rsc	SCDOT SUE & Utility Coordination Line-style Library
10scdot_sue_cdt.dgnlib	SCDOT SUE CAD Planimetry Tool Library
11scdot_sue_smd.smd	SCDOT SUE & Utility Coordination Geopak smd file

*SCDOT provides a Microstation seed file that contains the Department's standard CADD setting such as Global Origin, Unit Resolution, etc. SUE planimetry files will be created using the seed file to ensure the correct spatial referencing with other Department CADD files.

2.0 REQUIRED SUE SUBMITTALS

2.01 PLOTTED PLAN SET SUBMITTAL

Hardcopy SUE plan sets will be plotted using the provided SCDOT border files, in black ink, at a 1"=50' graphic scale on 22" x 36" sheets and numbered in accordance with the Highway Design Manual (HDM) Chapter 34, Par. 34.1.5. Two (2) copies of all applicable SUE project sheets will be sealed, dated, and signed by the PE or PLS in responsible charge of the project and submitted to the Department.

2.02 CADD FILE SUBMITTALS NAMING CONVENTION

All CADD file submitted to the SCDOT will incorporate the last three (3) digits of the Department's Project Identification Number (PIN) which may be obtained from the Surveys/Utilities Engineer's office. The following examples show the file names for a project with **PIN 12345**:

Sheet	File Name
SUE Title & Reference	u345ts.dgn
SUE Legend	u345ul.dgn
Utility & Pole Data	u345ud.dgn
Test Hole Data	u345th.dgn
SUE Planimetry	u345pp.dgn
SUE Plan Sheets	u345sue-01.dgn*
SUE Miscellaneous Detail	u345md.dgn**

*Files for the plan sheet borders will be numbered consecutively and match sheet numbers used in the CADD file.

**Any additional information or details pertaining to the SUE project will be placed on the Misc Detail Sheet (border1.dgn).

2.03 OTHER POSSIBLE SUBMITTALS

In addition to the CADD files, as described above, the following files will be submitted in accordance with the applicable SUE project Scope of Services:

COGO Database – Submit either a comma delineated ASCII file or a Geopak gpk file that contains all surveyed and calculated points used to draft the submitted CADD files.

Test Hole Report – Test Hole Report forms must meet or exceed to minimum requirements as described in the ASCE "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data" CI/ASCE 38-02. An example is included in this document.

Manhole Reports – Utility consultants may use the SCDOT Manhole Report Form or a pre-approved equivalent. An example form is included in this document.

3.0 GENERAL SUE CADD GUIDELINES

3.01 UTILITY UNIFORM COLOR CODES

SCDOT attempts to follow the APWA Uniform Color Codes in the CAD Development of SUE design files as per the following chart;

Color	Screen	Print	Utility
	WHITE	**BLACK**	Proposed Excavation, SUE Sweep Limits
	PINK	**PINK**	Temporary Survey Markings, Misc & Unknown Designated SUE
	RED	**RED**	Electric Power Lines, Cables, Conduits Lighting Cables
	YELLOW	**YELLOW**	Gas, Oil, Steam, Petroleum or Gaseous Material
	ORANGE	**ORANGE**	Communications, Alarm, and Traffic Signal
	BLUE	**BLUE**	Potable Water
	PURPLE	**PURPLE**	Reclaimed Water, Irrigation, Slurry
	GREEN	**GREEN**	Sanitary Sewer and Storm Drains

3.02 UTILITY UNIQUE IDENTIFIER LINES-STYLES

The SCDOT provides a specialized line-style library for delineating utility lines. Each of these line-styles contains a **Utility Unique Identifier (UUI)** that is to be assigned each utility with project specific properties as shown in the following table:

UTILITY	LOCATION METHOD	UNIQUE ID	LINE APPEARANCE	LINESTYLE NAME
ELECTRIC	LEVEL B	E1 THRU E10	DASHED	SDE1 – SDE10
ELECTRIC	LEVEL C	E1 THRU E10	SOLID	SRE1 – SRE10
ELECTRIC	LEVEL D	E1 THRU E10	SOLID	SRE1 – SRE10
AERIAL UTILITY	N/A	OH1 THRU OH20	SOLID	SROH1 – SROH20
AERIAL GUY WIRE	N/A	GW	SOLID	SGW
TRAFFIC CONTROL	LEVEL B	TF1 THRU TF5	DASHED	SDTF1 – SDTF5
TRAFFIC CONTROL	LEVEL C	TF1 THRU TF5	SOLID	SRTF1 – SRTF5
TRAFFIC CONTROL	LEVEL D	TF1 THRU TF5	SOLID	SRTF1 – SRTF5
AERIAL TRAIFFIC SIGNAL	N/A	SIG	SOLID	SIG
TELEPHONE	LEVEL B	T1 THRU T10	DASHED	SDT1 – SDT10
TELEPHONE	LEVEL C	T1 THRU T10	SOLID	SRT1 – SRT10
TELEPHONE	LEVEL D	T1 THRU T10	SOLID	SRT1 – SRT10
CABLE TV	LEVEL B	TV1 THRU TV10	DASHED	SDTV1 – SDTV10
CABLE TV	LEVEL C	TV1 THRU TV10	SOLID	SRTV1 – SRTV10
CABLE TV	LEVEL D	TV1 THRU TV10	SOLID	SRTV1 – SRTV10
GAS	LEVEL B	G1 THRU G10	DASHED	SDG1 – SDG10
GAS	LEVEL C	G1 THRU G10	SOLID	SRG1 – SRG10
GAS	LEVEL D	G1 THRU G10	SOLID	SRG1 – SRG10
STEAM LINE	LEVEL B	ST1 THRU ST5	DASHED	SDST1 – SDST5
STEAM LINE	LEVEL C	ST1 THRU ST5	SOLID	SRST1 – SRST5
STEAM LINE	LEVEL D	ST1 THRU ST5	SOLID	SRST1 – SRST5
FUEL / PETROLEUM	LEVEL B	F1 THRU F5	DASHED	SDP1 – SDP5
FUEL / PETROLEUM	LEVEL C	F1 THRU F5	SOLID	SRP1 – SRP5
FUEL / PETROLEUM	LEVEL D	F1 THRU F5	SOLID	SRP1 – SRP5
GASEOUS MATERIAL	LEVEL B	CA1 THRU CA5	DASHED	SDCA1 – SDCA5
GASEOUS MATERIAL	LEVEL C	CA1 THRU CA5	SOLID	SRCA1 – SRCA5
GASEOUS MATERIAL	LEVEL D	CA1 THRU CA5	SOLID	SRCA1 – SRCA5
WATER	LEVEL B	W1 THRU W10	DASHED	SDW1 – SDW10
WATER	LEVEL C	W1 THRU W10	SOLID	SRW1 – SRW10
WATER	LEVEL D	W1 THRU W10	SOLID	SRW1 – SRW10
IRRIGATION	LEVEL B	I1 THRU I5	DASHED	SDI1 – SDI5
IRRIGATION	LEVEL C	I1 THRU I5	SOLID	SRI1 – SRI5
IRRIGATION	LEVEL D	I1 THRU I5	SOLID	SRI1 – SRI5
RECLAIMED / SLURRY	LEVEL B	R1 THRU R5	DASHED	SRR1 – SRR5
RECLAIMED / SLURRY	LEVEL C	R1 THRU R5	SOLID	SRR1 – SRR5

UTILITY	LOCATION METHOD	UNIQUE ID	LINE APPEARANCE	LINESTYLE NAME
RECLAIMED / SLURRY	LEVEL D	R1 THRU R5	SOLID	SRR1 – SRR5
GRAVITY SEWER	LEVEL C	S1 THRU S10	SOLID	SRS1 – SRS10
GRAVITY SEWER	LEVEL D	S1 THRU S10	SOLID	SRS1 – SRS10
FORCED SEWER	LEVEL B	FS1 THRU FS10	DASHED	SDSF1 – SDSF10
FORCED SEWER	LEVEL C	FS1 THRU FS10	SOLID	SRSF1 – SRSF10
FORCED SEWER	LEVEL D	FS1 THRU FS10	SOLID	SRSF1 – SRSF10
DUCT BANK	LEVEL B	DB1 THRU FB5	DASHED	SDB1 – SDB5
DUCT BANK	LEVEL C	DB1 THRU DB5	SOLID	SRB1 – SRB5
DUCT BANK	LEVEL D	DB1 THRU DB5	SOLID	SRB1 – SRB5
UTLITY TUNNEL	LEVEL B	TNL	SOLID	SDTNL
UTLITY TUNNEL	LEVEL C	TNL	SOLID	SRTNL
UTLITY TUNNEL	LEVEL D	TNL	SOLID	SRTNL
MISC	LEVEL B	M1 THRU M5	DASHED	SDM1 – SDM5
MISC	LEVEL C	M1 THRU M5	SOLID	SRM1 - SRM5
MISC	LEVEL D	M1 THRU M5	SOLID	SRM1 - SRM5
UNKNOWN	DESIGNATED	UNK	DASHED	UNK
SWEEP LIMITS	N/A	SUE	SOLID	SUE

Utilities will be arranged by groups, combining the most common attributes such as utility type, size, material, capacity, etc. These groups will be assigned an UUI to delineate the utility lines and appurtenances on the planimetry file and referenced on the Utility & Pole Data Sheet.

For example, if a project has Telephone lines that are both direct buried copper cable, then the lines would be simply identified as T1 for one owner and T2 as the other.

3.03 SUE LINE-WORK

One of the most challenging aspects of drafting utility lines is making the UUIs and other labels legible. The UUI line-style text is formatted to appear every 250 linear feet in the CAD file. Here are a few methods to minimize UUI text overlap and congestion.

- In Microstation, line-styles patterns and text can be shifted linearly along the drafted line-work by using the **MODIFY LINESTYLE SHIFT** “Key In” command.
- Lengthy Line-Strings may need to be segmented to control the frequency of the line-style text.
- For line-style text that appears upside down, or running the opposite direction, use the **CHANGE DIRECTION** “Key-in” command.

3.04 GRAPHIC SCALE & TEXT

The CADD drafting standards described herein intended to produce hardcopy plans at a scale of one inch equals fifty feet (1"=50'). All borders provided are meant to plot on 22" x 36" sheets. All cells provided (ROADV8.cel) will be inserted into the CADD files at an active scale of 1.0.

Instructions for and examples of the standard Text font can be found in the provided CADD files. Use the following fonts, Heights, and Widths unless otherwise specified:

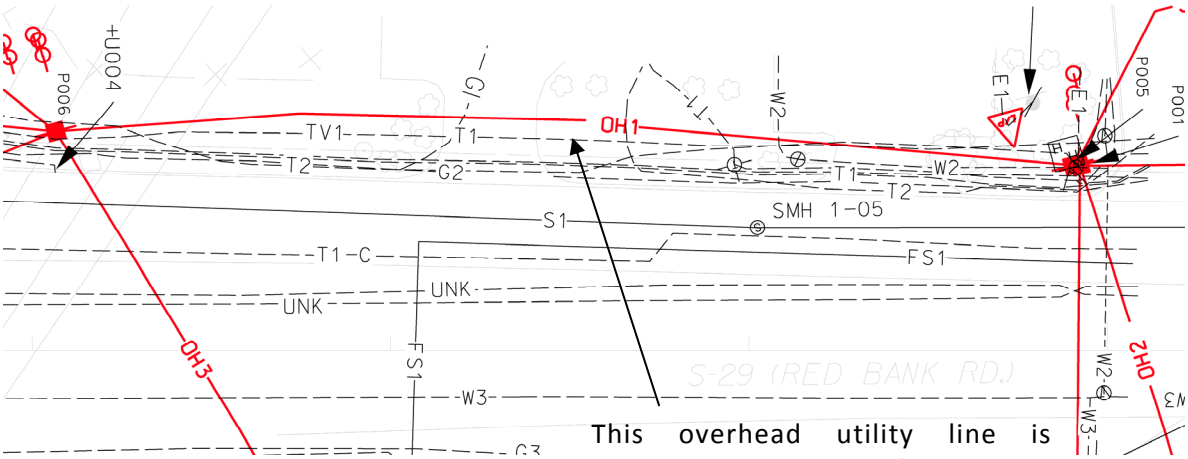
Item	Font	Height	Width
Supplemental Utility Line Labels	1	4	4
Descriptions, Tags, & Abbreviations	1	4	4
Utility Pole ID Numbers	1	3	3
Survey or Misc Notes	23	5	5

3.05 PLACING UTILITY POLE ID NUMBER LABELS

All utility poles will be labeled with a **Utility Pole ID Number (UPIN)** which is an alpha-numeric coded label (*e.g.* – **P001***)* that will be shown in the SUE planimetry CADD file and referenced on the Utility & Pole Data Sheet. The appropriate descriptive information will be placed on the Utility & Pole Data Sheet. An example of the UPIN can be found on the SUE Legend Sheet.

3.06 PLACING AERIAL (OVERHEAD) UTILITY LINES

In situations where the graphic depiction of the utility line-work becomes cluttered and possibly confusing, the overhead utility lines may be drafted on an offset. Aerial utility lines do not necessary have to be drawn directly from pole to pole, but may be drawn and arranged in a schematic manner that shows the correct inter-pole connectivity as well as the required utility labeling. See the following example:



3.07 SANITARY SEWER MANHOLE NUMBER LABELS

All sanitary sewer manholes will be labeled with a **Sewer Manhole Number (SMN)** which will be an alpha-numeric coded label (*e.g.* – **S001**) that will be shown in the SUE planimetry file**.** The SMN will be used on the Utility & Pole Data Sheet to list rim and invert elevations and other associated information. An example of the SMN can be found on the SUE Legend Sheet.

3.08 UTILITY INFORMATION TAG LABELS

In many cases, important information about utility structures and/or features needs to be identified and labeled in the SUE planimetry file. These areas and structures will be labeled with a **Utility Information Tag (UIT)** which will be an alpha-numeric coded label (*e.g.* - **U001**) with will be referenced on the Utility & Pole Data Sheet. All pertinent details and information can be listed and tabulated by the UIT. An example of the UIT can be found on the SUE Legend Sheet.

3.09 TEST HOLE LABELS

Test Holes will be labeled in the SUE planimetry file with a “TH” along with the corresponding Test Hole number (*e.g.* **TH-01***)*. Test Hole numbers will match the numbering sequence as used on the Test Hole Report and on the Test Hole Data Sheet.

3.10 UTILITY ABBREVIATIONS

The following are lists of abbreviations used on a SCDOT SUE project. Custom abbreviations for materials and/or utilities not listed below may be used. All custom abbreviations will be added to the SUE Legend Sheet and shown as Project Specific Custom Abbreviations.

3.10.01 UTILITY ABBREVIATIONS

E	Electric (Power)	DB	Duct Bank
W	Water	TF	Traffic Control
G	Gas	UNK	Unknown
PUPS	Palmetto Utility Protection Services	H	Hydrogen Peroxide
T	Telephone	ST	Steam Line
TV	Cable Television	F	Fuel / Petroleum Line
S	Sanitary Sewer	CA	Compressed Gases
FS	Forced Sanitary Sewer	TNL	Tunnel
I	Irrigation	R	Reclaimed Water / Slurry

3.10.02 MATERIAL ABBREVIATIONS

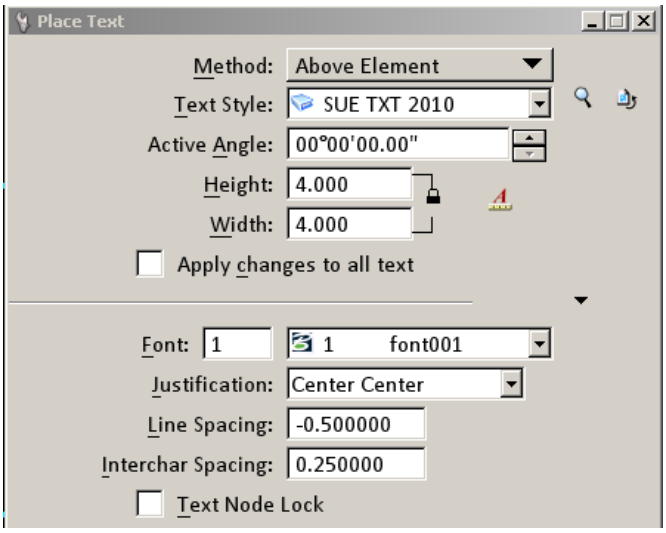
C	Copper	PV	PVC
CI	Cast Iron	RC	Reinforced Concrete
CO	Concrete	S	Steel
DI	Ductile Iron	TC	Terra Cotta
F	Fiber Optic	SWC	Steel Wrapped Coated
P	Plastics	AC	Asbestos Cement
TF	Traffic Signal Cable		

3.10.03 INFORMATIONAL ABBREVIATIONS

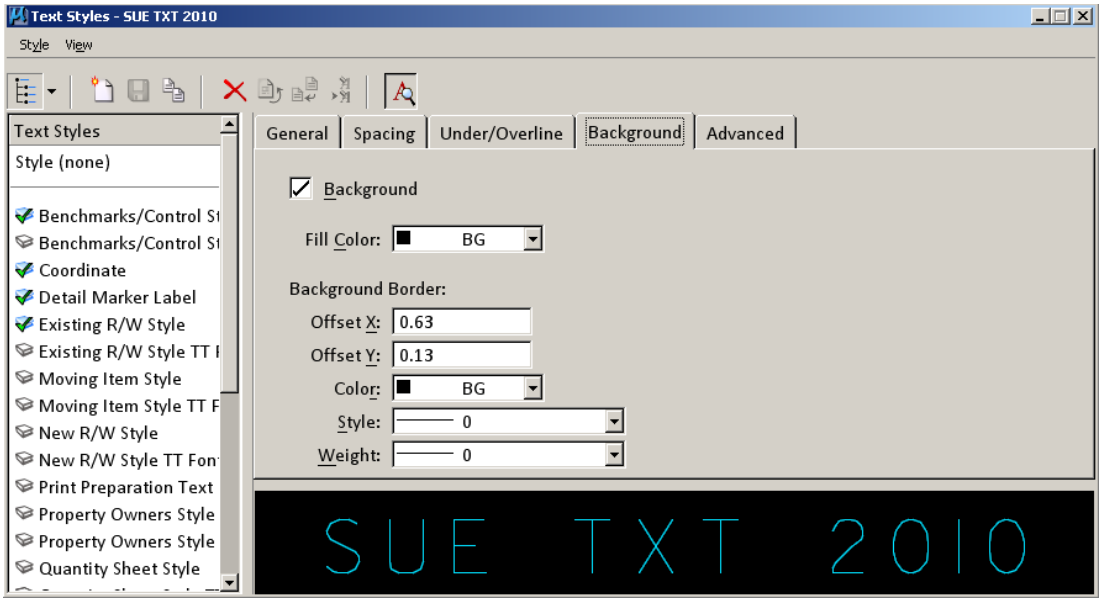
EOI	End of Surface Geophysical Information	NAP	No Associated Piping Found From Structure
EORI	End if Recorded Information	NAC	No Associated Cables Found From Structure
AATUR	Abandoned According to Utility Records	DATFI	Depicted According to Field inspection
AATFI	Abandoned According to Field Inspection	EATFI	Empty According to Field Inspection
EATUR	Empty According to Utility Records		

3.11 SUPPLEMENTAL UTILITY LINE LABELS

If labeling a utility line is necessary, lines will be labeled in the following manner and shown on the Utility Legend Sheet. SCDOT provides a Font Style named SCDOT SUE which will be used when making supplemental labels. In general, lines will be labeled at 250 foot increments using **Font 1, Height 4, Weight 4, CENTER – CENTER Justification, Line Spacing -0.50, and Interchar Spacing 0.250**. Labels will be placed using the **Above Element Method**. CADD technicians will make every effort to place the labels with minimum overlap of other labels, cells, etc.



A Text Style incorporating a Background Color of **225 (BG)** will be used on Utility Line Labels.



This labeling method will give the appearance of broken line elements

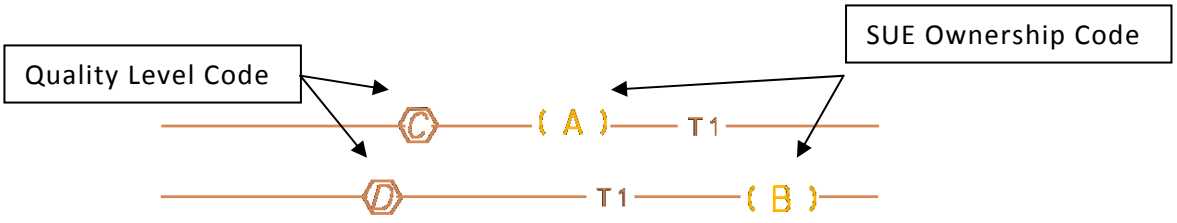
3.11.01 QUALITY LEVEL LINE CODES

Some SUE project will combine Level C and Level D SUE Quality Levels. Since construction plans are plotted in black ink only, it can be necessary to differentiate between the Quality Levels. Using the Supplemental Line Label methods, as described above, the SUE Quality Level of lines can be depicted using the following symbol codes:

C	Quality Level C
D	Quality Level D

3.11.02 SUE OWNERSHIP CODES

The complexities of some SUE projects will greater detail in line descriptions than the SCDOT Line-style library contains. In cases where the available line-styles are not sufficient due to multiple SUE owners, ownership of lines can be depicted with **SUE Ownership Codes (SOC).** Using the Supplemental Labeling method, place a SOC for the utilities by a letter system inside of parenthesis. See the following example:



3.12 UTILITY TOWERS AND TRANSMISSION LINES

Utility towers will be located and drafted by the shape of its footprint using the **Utility Poles** level (RD_EX_SU_Poles) and a solid line-style (0). Towers will be tagged with a **UPIN** and all pertinent information required will be placed on the Utility & Pole Data Sheet.

Some projects may require the Transmission pole/tower bent widths measured or the approximate horizontal location of the transmission lines. All detailed information should be noted on the Utility & Pole Data Sheet. Notes on measuring and/or surveying methods should be placed on the SUE Legend Sheet in the Project Specific Note section.

4.0 CADD FILES, SHEETS AND DESCRIPTIONS

4.01 TITLE & UTILITY REFERENCE SHEET

This sheet contains Subsurface Utility Engineer consultant's firm name and contact information. It also contains all of the project utility owner names, contact information, and owner identifier used in the Utility Line Labels found in the SUE planimetry file. Each utility owner can be given an Owner Reference Abbreviation for further references in the Utility & Pole Data Sheets. Utility owner information will typically appear as follows:

WATER (UTILITY TYPE)	**OWNER REF. ABBR - CAW**
COUNTY WATER AUTHORITY	(OWNER NAME)
123 HAPPY STREET	(ADDRESS)
CITY, STATE ZIP	
JOE SMITH	(CONTACT NAME)
000-123-4567	(CONTACT NUMBER)

4.02 SUE LEGEND SHEET

This sheet contains the descriptions and names of the symbols (cells) found in the SUE planimetry file. Examples of the line formats and descriptions of the Utility Unique Identifier Line Labels are shown on this sheet. Any project specific custom symbols or abbreviations will be added to this sheet and labeled as "**Project Specific Utility Symbols**".

Included on this sheet are notes explaining the quality levels of the SUE data, the quality level applied to the project, survey control used, and any miscellaneous information pertinent to the overall project.

This sheet contains space to place Project Specific Notes. This area will be used to note the following information;

- Graphic information that varies from the standard legend
- Surface Geophysical Methods used in designation
- Dates of Designation (Level B), Location (Level A), and Surveying (A, B, C)
- Any Consultant Certifications, Statements, or Disclaimers

4.03 SUE PLANIMETRY

All SUE mapping will be contained in this 2d Microstation CADD file. All Survey COGO data points and information may be included in this file and placed on the appropriate levels.

In most cases, engineer CAD files are aligned to plot with the reference alignments to appear horizontally across the plan sheets. Stationing will almost always run from left to right across the plan sheets. Generally, all SUE text and labels should be arranged to appear parallel with the nearest reference alignment and to read left to right going up-stationing. It is important to verify the engineer's layout and to request specific guidance on the orientation appearance of the SUE planimetry information.

All structure information, including, but not limited to, elevations, record information, field conditions, pole data, etc. should not be shown in the planimetry file, but referenced using the labeling scheme as described in the CAD manual. All structure data will be shown on the Utility & Pole Data Sheets.

All Survey Control used for SUE projects will be mapped per the **SCDOT PRECONSTRUCTION SURVEY MANUAL.**

4.04 UTILITY & POLE DATA SHEET

All information relative to utility appurtenances and utility pole is shown on the sheet. Information about utility relocation items will be shown on this sheet when applicable. All items will be grouped by reference alignment and will be listed in an up-station order whenever possible. The information required for this sheet is as follows:

COLUMN	DESCRIPTION	EXAMPLE
UTILITY	a) Reference the Utility Unique Identifier (UUI) b) Reference Sewer Manhole Number (SMN) c) Reference Utility Information Tags (UIT)	E1, G1, OH15 S001, SMH-02 U001, U05
POLE	Reference the Utility Pole ID Number (UPIN)	P001, P25
ALIGNMENT ROUTE RD	Reference the Alignment used for stationing Use design alignments when available	MAIN ST. MAIN ST RELOC
STATION RANGE	a) Reference the station of the begin & end of linear utility b) Reference the station location of utility appurtenance c) Reference the station location of manhole	01+23 - 45+67 01+23 01+23
OFFSET RANGE	a) Reference the offset of the begin & end of linear utility b) Reference the offset location of utility appurtenance c) Reference the offset location of manhole	15R - 15R 25L 25L
ITEM IN PLACE	a) Reference utility type, size, & material b) Reference the utility appurtenance type c) Reference manhole	TELEPHONE, COPPER / GAS 6" DI U/G PEDESTAL SEWER MH
OWNERSHIP	Reference utility owner by name or by Owner Reference Abbreviation From Title Sheet	LOCAL POWER CO or LPC
POLE DATA	Reference Owner Number, Height, Diameter, and Material of pole	DPC123, 35', 12", WOOD
REMARKS MISC NOTES	a) Further details including capacity, etc. b) List Sewer rims and invert elevations c) List details and descriptions, sizes, record information, etc.	 RIM=123.45, INV IN=123.45 INV OUT=123.45 RECORDS SHOW INFO

4.05 TEST HOLE DATA SHEET

All information relative to the test hole is shown on this sheet including detailed information about the location and results of the test holes performed on the project.

4.06 MICROSTATION SYMBOLS, & SURVEY CODES

The cell library (**08scdot_sue_cel.cel**) provided by the Department contains most of the graphic symbols required to produce SUE project files and plans. For structures not found in the cell library, custom symbols may be used. All custom symbols must be added to the SUE Legend Sheet, shown as a Project Specific Custom Symbol, and given a brief description.

4.06.01 ELECTRIC

SUE ITEMS	CELL NAME	CELL GRAPHIC	SMD CODE	SPECIAL INSTRUCTIONS
TRANSFORMER BOX	SUE_ETB		ETBS	
ELECTRIC MANHOLE	SUE_EMH		PMS	
POWER HAND HOLE	SUE_EHH		PHHS	
GROUND / LANDSCAPE LIGHT	SUE_EGL		EGLS	
ELECTRIC VAULT	SUE_EV		EVTS	NOTE DIMENSION ON UTILITY DATA SHEET*
ELECTRIC BOX	SUE_EB		EBXS	
ELECTRIC PEDESTAL	SUE_EPP		EPPS	
ELECTRIC GEAR SWITCH BOX	SUE_EGS		ESBS	
ELECTRIC AIR BRAKE	SUE_EAB		EABS	

4.06.02 TRAFFIC CONTROL

SUE ITEMS	CELL NAME	CELL GRAPHIC	SMD CODE	SPECIAL INSTRUCTIONS
TRAFFIC SIGNAL CONTROL VAULT	SUE_TFV		TFVS	NOTE DIMENSION ON UTILITY DATA SHEET*
TRAFFIC SIGNAL JUNCTION BOX	SUE_TFJ		TFJS	
TRAFFIC CONTROL HAND HOLE	SUE_TFHH		TFHS	

4.06.03 GAS

SUE ITEMS	CELL NAME	CELL GRAPHIC	SMD CODE	SPECIAL INSTRUCTIONS
GAS METER	SUE_GM		GMS	
GAS VALVE	SUE_GV		GVS	
GAS VENT	SUE_GVT		GVTS	
GAS PRESSURE REGULATOR	SUE_GR		GRS	
GAS MANHOLE	SUE_GMH		GMHS	
GAS TEST POINT	SUE_GTP		GTPS	
GAS TAP FARM	SUE_GTF		GTFS	NOTE DIMENSION ON UTILITY DATA SHEET*

4.06.04 SANITARY SEWER

SUE ITEMS	CELL NAME	CELL GRAPHIC	SMD CODE	SPECIAL INSTRUCTIONS
SEWER CLEAN OUT	SUE_SCO		SCOS	
SEWER MANHOLE	SUE_SMH		SMHS	
SEWER AIR RELEASE VALVE	SUE_SAR		SARS	
SEWER STEP TANK	SUE_SST		SST	
SEWER CHECK VALVE BOX	SUE_SCV		SCVS	
GRINDER OR PUMP STATION	SUE_SGP		SGPS	NOTE DIMENSION ON UTILITY DATA SHEET*
SEWER VALVE	SUE_SSV		SSVS	

4.06.05 TEST HOLE

TEST HOLES	CELL NAME	CELL GRAPHIC	SMD CODE	SPECIAL INSTRUCTIONS
TEST HOLE SYMBOL	SUE_TH		THS	NOTE TH # ON SAME LEVEL

4.06.06 WATER

SUE ITEMS	CELL NAME	CELL GRAPHIC	SMD CODE	SPECIAL INSTRUCTIONS
WATER METER	SUE_WM		WMS	
WATER VALVE	SUE_WV		WVS	
MONITORING WELL	SUE_WMW		WMWS	
FIRE HYDRANT	SUE_WFH		FHS	
WATER MANHOLE	SUE_SMH		WMHS	
AIR RELEASE VALVE	SUE_WAR		WARS	
WELL HOUSE	SUE_WEL		WELLS	NOTE DIMENSION ON UTILITY DATA SHEET*
BLOW OFF VALVE	SUE_WBO		WBOS	
BACK FLOW PREVENTER	SUE_WBP		WBPS	
FIRE DEPARTMENT CONNECTION TEE	SUE_WFC		FDCS	
VALVE BOX	SUE_WVB		WVBS	

4.06.07 MISCELANEOUS

MISC	CELL NAME	CELL GRAPHIC	SMD CODE	SPECIAL INSTRUCTIONS
MISC / UNKNOWN VALVE CAP	SUE_MUC		MUCS	
UTILITY WITNESS MARKER	SUE_WTS		WTSS	

4.06.08 TELECOMMUNICATION

SUE ITEMS	CELL NAME	CELL GRAPHIC	SMD CODE	SPECIAL INSTRUCTIONS
CABLE TV PEDESTAL	SUE_TV		TVS	
TELEPHONE PEDESTAL	SUE_TPP		TPPS	
TELEPHONE MANHOLE	SUE_TMH		TMHS	
FIBER OPTIC HAND HOLE	SUE_TFOHH		FHHS	
TELEPHONE HAND HOLE	SUE_THH		THHS	
CABLE TV HAND HOLE	SUE_TVHH		TVHHS	
UNDERGROUND CABLE TV PEDESTAL	SUE_UTV		UPTVS	
UNDERGROUND TELEPHONE PEDESTAL	SUE_TUP		UPTS	
UNDERGROUND TELEPHONE VAULT	SUE_TUV		UVTS	NOTE DIMENSION ON UTILITY DATA SHEET*
CABLE TV BOX	SUE_TVB		TVBXS	
TELEPHONE REPEATER	SUE_RPT		RPTS	
TELEPHONE BOX	SUE_TBX		TBXS	
TELEPHONE BOOTH	SUE_TBS		TBS	

4.06.09 UTILITY POLE

SUE ITEMS	CELL NAME	CELL GRAPHIC	SMD CODE	SPECIAL INSTRUCTIONS
POWER POLE	SUE_PP		PPS	
METER POLE	SUE_PMP		MPS	
LIGHT POLE	SUE_PLP		LPS	
GUY WIRE ANCHOR	SUE_PGW		GWS	
GUY POLE	SUE_PGP		GPS	
TRANSMISSION POLE	SUE_PLT		PLTS	
TELEPHONE POLE	SUE_PTP		TPS	
CELL PHONE TOWER	SUE_PCT		CTS	
OTHER USE POLE	SUE_POP		OPS	
SIGNIFICANT POLE (STEEL, CONC)	SUE_PSP		SGPS	
TRAFFIC SIGNAL POLE	SUE_TFP			

4.06.10 NON-POTABLE WATER

SUE ITEMS	CELL NAME	CELL GRAPHIC	SMD CODE	SPECIAL INSTRUCTIONS
IRRIGATION CONTROL VALVE	SUE_ICV		ICVS	
IRRIGATION CONTROL BOX	SUE_ICB		ICBS	
IRRIGATOR HEAD / SPRINKLER	SUE_IRH		IRHS	

4.07 MICROSTATION UTILITY UNIQUE IDENTIFIER LINES

The following chart shows the basic UUI line-styles;

LEVEL NAME	UTILITY	SUE TYPE	LINE COLOR	LINE APPEARANCE
RD_EX_SU_Elec	ELECTRIC	LEVEL B	(127)	E1
		LEVEL C		E1
		LEVEL D	210*	E1
RD_EX_SU_Trfc	TRAFFIC CONTROL	LEVEL B	(132)	TF1
		LEVEL C		TF1
		LEVEL D	133*	TF1
RD_EX_SU_Gas	GAS	LEVEL B	(231)	G1
		LEVEL C		G1
		LEVEL D	230*	G1
	STEAM LINE	LEVEL B	(231)	ST1
		LEVEL C		ST1
		LEVEL D	228*	ST1
	GASEOUS MATERIAL	LEVEL B	(231)	CA1
		LEVEL C		CA1
		LEVEL D	232*	CA1
	FUEL LINE	LEVEL B	(231)	F1
		LEVEL C		F1
		LEVEL D	229*	F1
RD_EX_SU_H2O	WATER	LEVEL B	(155)	W1
		LEVEL C		W1
		LEVEL D	180*	W1
RD_EX_SU_Telecom	TELEPHONE	LEVEL B	(6)	T1
		LEVEL C		T1
		LEVEL D	82*	T1
	CABLE TV	LEVEL B	(6)	TV1
		LEVEL C		TV1
		LEVEL D	80*	TV1
RD_EX_SU_Nonpot	IRRIGATION	LEVEL B	(49)	I1
		LEVEL C		I1
		LEVEL D	50*	I1
	RECLAIMED WATER / SLURRY	LEVEL B	(49)	R1
		LEVEL C		R1
		LEVEL D	51*	R1
RD_EX_SU_Ovhd	AERIAL UITILTY LINES	N/A	(127)	OH1
	AERIAL GUY WIRES	N/A		GW
	AERIAL TRAFFIC SIGNAL LINES	N/A	(132)	SIG
RD_EX_SU_Sewer	GRAVITY SEWER	LEVEL C	(194)	S1
		LEVEL D	195*	S1
	FORCED SEWER	LEVEL B	(194)	FS1
		LEVEL C		FS1
		LEVEL D	195*	FS1
RD_EX_SU_Dbank	UTILITY DUCT BANK	LEVEL B	(60)	DB1
		LEVEL C		DB1
		LEVEL D	59*	DB1
RD_EX_SU_Misc	MISCELLANEOUS	LEVEL B	(28)	M1
		LEVEL C		M1
		LEVEL D	27*	M1
RD_EX_SU_Tank	A/G & U/G TANK OUTLINES	N/A	(1)	
RD_EX_SU_Swplmt	SUE SWEEP LIMIT LINE	N/A	(0)	SUE
RD_EX_SU_Pole	POLE & TOWER OUTLINES	N/A	(127)	

4.08 SURVEY SUE LINE CODES

The following chart details the SUE Surveying codes found in the SCDOT Standard SMD File (SCDOTV8.smd);

LEVEL NAME	UTILITY	SUE TYPE	SURVEY CODES
RD_EX_SU_Elec	ELECTRIC	LEVEL B	ES01 ES10
RD_EX_SU_Trfc	TRAFFIC CONTROL	LEVEL B	TFS01 TFS10
RD_EX_SU_Gas	GAS	LEVEL B	GS01 GS10
	STEAM LINE	LEVEL B	STS1 STS5
	GASEOUS MATERIAL	LEVEL B	CAS1 CAS5
	FUEL LINE	LEVEL B	PFS1 PFS5
RD_EX_SU_H2O	WATER	LEVEL B	WS01 WS10
RD_EX_SU_Telecom	TELEPHONE	LEVEL B	TS01 TS10
	CABLE TV	LEVEL B	TVS01 TVS10
RD_EX_SU_Nonpot	IRRIGATION	LEVEL B	SDI1 SDI5
	RECLAIMED WATER / SLURRY	LEVEL B	SDR1 SDR5
RD_EX_SU_Sewer	GRAVITY SEWER	N/A	SS01 SS10
	FORCED SEWER	LEVEL B	FSS01 FSS10
RD_EX_SU_Dbank	UTILITY DUCT BANK	LEVEL B	DBS1 DBS5
RD_EX_SU_Misc	MISCELLANEOUS	LEVEL B	MULS1 MULS5
RD_EX_SU_Tank	A/G & U/G TANK OUTLINES	N/A	TKS1 TKS5
RD_EX_SU_Pole	POLE & TOWER OUTLINES	N/A	EPLS

5.0 GENERAL UTILITY LOCATING GUIDELINES

These general guidelines are not intended to dictate the procedures, methods, processes, and standards employed by a professional utility engineering firm, but to serve as an outline to the specific items and areas as required by the Department. All utility data collection should meet or exceed the standards as described in the "Standard Guideline for the collections and depiction of Existing subsurface Utility Data (CI/ASCE 38-02)" as published by the American Society of Civil Engineers.

All land surveying involved with the location of the surface and subsurface utility data will meet or exceed the requirements as described in the "Minimum Standards Manual for the Practice of Land Surveying in South Carolina".

5.01 SUBSURFACE QUALITY LEVELS

The reliability and graphic accuracy of Subsurface Utility Engineering data collection is quantified by four (4) accumulative "Quality Levels" ranging from least reliable to within a foot as referenced to the project datum. These levels are listed and described as follows:

Level D. This level information comes solely from existing utility records. It may provide an overall "feel" for the congestion of utilities, but it is often highly limited in terms of comprehensiveness and accuracy. Its usefulness should be confined to project planning and route selection activities.

Level C. This level involves surveying visible aboveground utility facilities (e.g., manholes, valve boxes, posts) and correlating this information with existing utility records. When using this information, it is not unusual to find that many underground utilities have been either omitted or erroneously plotted. Its usefulness, therefore, should be confined to rural projects where utilities are not prevalent, or are not too expensive to repair or relocate.

Level B. This level involves the use of surface geophysical techniques to determine the existence and horizontal position of underground utilities. This activity is called "designating." Two-dimensional mapping information is obtained. This information is usually sufficient to accomplish preliminary engineering goals. Decisions can be made on where to place storm drainage systems, footers, foundations and other design features in order to avoid conflicts with existing utilities. Slight adjustments in the design can produce substantial cost savings by eliminating utility relocations.

Level A. This level involves the use of nondestructive digging equipment at critical points to determine the precise horizontal and vertical position of underground utilities, as well as the type, size, condition, material and other characteristics. This activity is called "locating." It is the highest level presently available. When surveyed and mapped, precise plan and profile information are available for use in making final design decisions. By knowing exactly where a utility is positioned in three dimensions, the designer can often make small adjustments in elevations or horizontal locations and avoid the need to relocate utilities. Additional information (e.g., utility materials, condition, size, soil contamination, paving thickness) also assists the designer and Utility Company in their decisions.

5.02 UTILITY RECORD RESEARCH

The Department requires all utility records collected during the course of a SUE project to be available upon request.

5.03 UTILITY POLES AND OVERHEAD UTILITY LINES

All utility poles within the SUE Sweep Limits should be located using the project coordinate datum and the following data will be collected:

Owner
Owner Tag Number
Pole Material & Diameter
Pole Height (distance from the nearest natural ground to the pole to the top of the pole)
Riding Utilities (including utility capacities where possible)

Overhead utility lines should be shown in their entirety within the project limits. Accurate line directions in areas where the overhead utilities extend beyond the Sweep Limits will be shown by locating connecting utility poles outside the project area.

5.04 SUBSURFACE UTILITY DESIGNATION

All subsurface utility lines will be located using the appropriate surface geophysical methods as determined by the utility engineer consultant. The horizontal accuracy of the marked lines is anticipated in the approximate horizontal location of the subsurface utility.

Telecommunication utility lines rated with a capacity less than 100 pair will be located by **Level C** methods only unless specified otherwise in contract documents.

Residential water and gas utility service lines will be located by **Level C** methods only unless otherwise specified in contract documents.

Location of Gravity Sanitary Sewer lines is considered a **Level C** effort. Structure rim and pipe invert elevations will be surveyed and shown in the CADD files.

APPENDIX A – TEST HOLE REPORT FORM

SCDOT SUE Text Hole Report Form

City, County, State
Route/Gen Location:
Utility Owner:
Recorded Utility Type:
Recorded Util Size:
Recorded Util Material:
Pavement Condition Prior to Excavation:

Test Hole No:
SCDOT PIN:
Report Date:
Plan Sheet Ref:
Consultant Ref No:
SUE Tech:
Truck/Form:

Contact & Number:
Address:
Consultant:

Survey Project Datum Provided by:

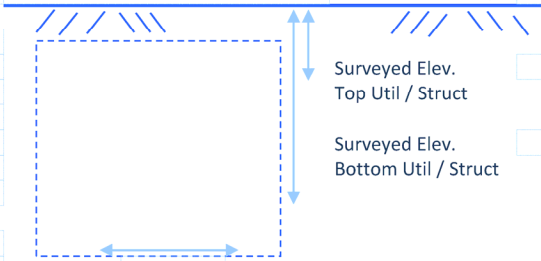
BM # 1 Elev=
is
Description

BM # 2 Elev=
is
Description:

Benchmark Check:
Test Hole Elev ref to:

Located Utility Type:
Size:
Material:
Utility Condition:
Additional Utilities in Hole:
(see remarks)
Field Conditions:
Pvmt Thickness & Type:
Soil Type:

Existng Grade of:
Installed Tape Color:
Elev=



TH Ref Alignment:
TH Station:
TH Offset:
Ref. Survey Cntl Pnt:
N=
E=
Elev=

Surveyed Elev.
Top Util / Struct

Surveyed Elev.
Bottom Util / Struct

TH Survey Marker
N=
E=
Elev=

Width

Cross Section Facing:

Remarks:

Centerline of Utility:
N=
E=

Plan View Sketch:

Engineer/Surveyor Hand, Seal & Date

APPENDIX B – MANHOLE REPORT FORM

SCDOT MANHOLE REPORT FORM

CITY, COUNTY, STATE:_____ SCDOT PIN/PCN:_____
ROUTE/LOCATION: _____ REPORT DATE:_____
UTILITY OWNER: _____CONSULTANT JOB #: _____
SURVEY CONTROL BY:_____ TECH: _____

GENERAL NOTES: _____

_____

_____

_____

MANHOLE SKETCH:

CONSULTANT: _____
ADDRESS: _____
CONTACT & NO:_____

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	NO.	SHEET NO.
3	S.C.				

South Carolina Department of Transportation

COLUMBIA

SUBSURFACE UTILITY ENGINEERING FOR PROPOSED STATE HIGHWAY

UTILITY OWNER INFORMATION

UTILITY TYPE
OWNER NAME
MAILING ADDRESS
CITY, STATE ZIP
CONTACT NAME
PHONE
UTILITY TYPE / QUANTITIES
UTILITY TYPE / QUANTITIES

UTILITY TYPE
OWNER NAME
MAILING ADDRESS
CITY, STATE ZIP
CONTACT NAME
PHONE
UTILITY TYPE / QUANTITIES
UTILITY TYPE / QUANTITIES

UTILITY TYPE
OWNER NAME
MAILING ADDRESS
CITY, STATE ZIP
CONTACT NAME
PHONE
UTILITY TYPE / QUANTITIES
UTILITY TYPE / QUANTITIES

UTILITY TYPE
OWNER NAME
MAILING ADDRESS
CITY, STATE ZIP
CONTACT NAME
PHONE
UTILITY TYPE / QUANTITIES
UTILITY TYPE / QUANTITIES

UTILITY TYPE
OWNER NAME
MAILING ADDRESS
CITY, STATE ZIP
CONTACT NAME
PHONE
UTILITY TYPE / QUANTITIES
UTILITY TYPE / QUANTITIES

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MAILING ADDRESS
CITY, STATE ZIP
CONTACT NAME
PHONE
UTILITY TYPE / QUANTITIES
UTILITY TYPE / QUANTITIES

UTILITY TYPE
OWNER NAME
MAILING ADDRESS
CITY, STATE ZIP
CONTACT NAME
PHONE
UTILITY TYPE / QUANTITIES
UTILITY TYPE / QUANTITIES

UTILITY TYPE
OWNER NAME
MAILING ADDRESS
CITY, STATE ZIP
CONTACT NAME
PHONE
UTILITY TYPE / QUANTITIES
UTILITY TYPE / QUANTITIES

$$user$$
$$$$$pathss$$$$$$$filenames$$$$$$$
$$$date$$$$

VICINITY MAP (APPROXIMATE SCALE 1" =)

INDEX OF UTILITY SHEETS

UTILITY LEGEND	U.02
UTILITY DETAIL	U.03
UTILITY TEST HOLE	U.04
UTILITY PLAN SHEETS	U.05

NOTE: ALL WORKMANSHIP ON THIS PROJECT IS TO CONFIRM WITH SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (LATEST EDITION), AND BOOK OF STANDARD DRAWINGS FOR ROAD CONSTRUCTION (LATEST PUBLISHED ENGLISH REVISION)

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA

CALL 1-800-922-0983
PALMETTO UTILITY PROTECTION SERVICE

APPROXIMATE LOCATION OF ROADWAY

LONGITUDE: -XXX° XX' XX.XX"
LATITUDE : YY° YY' YY.YY"

SUBSURFACE UTILITY ENGINEERING FIRM

SUBSURFACE UTILITY ENGINEERING FIRM
PROJECT ENGINEER

SIGNATURE DATE

CERTIFICATION STATEMENT:

THESE PLANS WERE PREPARED AND CERTIFIED BY THE CONSULTANT FOR COMPLETENESS. NO REVIEWS OR SIGNATURES BY THE SCDOT ARE REQUIRED.

BORDER_SCJDGN

SUE LEGEND AND NOTES

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROAD	ROUTE NO.	SHEET NO.
3	S.C.	BERKELEY	08.038779	S-62	D1	

POLE SYMBOLS

SYM	ABV	DESCRIPTION
	SP	SIGNIFICANT POLE (STEEL, CONCRETE, ETC)
	PP	ELECTRIC, COMBINATION POLE
	MP	METER POLE
	PLT	TRANSMISSION LINE POLE
	LP	AREA LIGHT POLE
	TP	TRAFFIC SIGNAL POLE
	OP	OTHER SUE POLE
	CT	CELL PHONE TOWER
	TP	TELEPHONE POLE

TELECOMMUNICATION SYMBOLS

	TB	TELEPHONE BOOTH
	TVP	CABLE TV PEDESTAL
	TPP	TELEPHONE PEDESTAL
	TMH	TELEPHONE MAN HOLE
	FOHH	FIBER OPTIC HAND HOLE
	THH	TELEPHONE HAND HOLE
	TVHH	CABLE TV HAND HOLE
	TBX	TELEPHONE BOX
	RPT	TELEPHONE REPEATER
	TVB	CABLE TV BOX
	TUV	UNDERGROUND TELEPHONE VAULT
	TUP	UNDERGROUND TELEPHONE PEDESTAL
	UTV	UNDERGROUND CABLE TV PEDESTAL

UTILITY UNIQUE IDENTIFIER LINE–STYLES

ELECTRIC RECORDED	E1 THRU E10
ELECTRIC DESIGNATED	E1 THRU E10
TRAFFIC CONTROL RECORDED	TF1 THRU TF5
TRAFFIC CONTROL DESIGNATED	TF1 THRU TF5
TELEPHONE RECORDED	T1 THRU T10
TELEPHONE DESIGNATED	T1 THRU T10
CABLE TV RECORDED	TV1 THRU TV10
CABLE TV DESIGNATED	TV1 THRU TV10
IRRIGATION RECORDED	I1 THRU I5
IRRIGATION DESIGNATED	I1 THRU I5
SLURRY RECORDED	R1 THRU R5
SLURRY DESIGNATED	R1 THRU R5
GAS RECORDED	G1 THRU G10
GAS DESIGNATED	G1 THRU G10
FUEL/PETROL RECORDED	F1 THRU F5
FUEL/PETROL DESIGNATED	F1 THRU F5
STEAM RECORDED	ST1 THRU ST5
STEAM DESIGNATED	ST1 THRU ST5
COMPRESSED GASES RECORDED	CA1 THRU CA5
COMPRESSED GASES DESIGNATED	CA1 THRU CA5
WATER RECORDED	W1 THRU W10
WATER DESIGNATED	W1 THRU W10
GAVITY SEWER	S1 THRU S10
FORCED SEWER RECORDED	FS1 THRU FS10
FORCED SEWER DESIGNATED	FS1 THRU FS10
AERIAL SIGNAL LINE	SIG
AERIAL UTILITY LINE	OH1 THRU OH20
AERIAL GUY WIRE	GW
MISCELANEOUS RECORDED	M1 THRU M5
MISCELANEOUS DESIGNATED	M1 THRU M5
DUCT BANK RECORDED	DB1 THRU DB5
DUCT BANK DESIGNATED	DB1 THRU DB5
UTILITY TUNNEL	TNL
UNKOWN DESIGNATED	UNK
SWEEP LIMIT	SUE

SEWER SYMBOLS

SYM	ABV	DESCRIPTION
	SCO	SEWER CLEAN OUT
	SMH	SEWER MAN HOLE
	SAR	SEWER AIR RELEASE VALVE
	SST	SEWER STEP TANK
	SCV	SEWER CHECK VALVE BOX
	SGP	SEWER GRINDER /PUMP STATION
	SSV	SEWER VALVE

WATER SYMBOLS

	WM	WATER METER
	WV	WATER VALVE
	WMW	WATER MONITORING WELL
	FH	FIRE HYDRANT
	WMH	WATER MAN HOLE
	WAR	WATER AIR RELEASE VALVE
	WVB	WATER VALVE BOX
	WFC	FIRE DEPARTMENT CONNECTION
	WBP	WATER BACKFLOW PREVENTER
	WBO	WATER BLOW OFF VALVE
	WWH	WELL HOUSE

MISC SYMBOLS

	WTS	UTILITY WITNESS POST
EOI	EOI	END OF INFORMATION
	MUC	MISC /UNKNOWN VALVE CAP OR COVER
	TH	TEST HOLE

QUALITY LEVEL DEFINITIONS

Level D. This level information comes solely from existing utility records. It may provide an overall "feel" for the congestion of utilities, but it is often highly limited in terms of comprehensiveness and accuracy. Its usefulness should be confined to project planning and route selection activities.

Level C. This level involves surveying visible aboveground utility facilities (e.g., manholes, valve boxes, posts) and correlating this information with existing utility records. When using this information, it is not unusual to find that many underground utilities have been either omitted or erroneously plotted. Its usefulness, therefore, should be confined to rural projects where utilities are not prevalent, or are not too expensive to repair or relocate.

Level B. This level involves the use of surface geophysical techniques to determine the existence and horizontal position of underground utilities. This activity is called "designating." Two–dimensional mapping information is obtained. This information is usually sufficient to accomplish preliminary engineering goals. Decisions can be made on where to place storm drainage systems, footers, foundations and other design features in order to avoid conflicts with existing utilities. Slight adjustments in the design can produce substantial cost savings by eliminating utility relocations.

Level A. This level involves the use of nondestructive digging equipment at critical points to determine the precise horizontal and vertical position of underground utilities, as well as the type, size, condition, material and other characteristics. This activity is called "locating." It is the highest level presently available. When surveyed and mapped, precise plan and profile information are available for use in making final design decisions. By knowing exactly where a utility is positioned in three dimensions, the designer can often make small adjustments in elevations or horizontal locations and avoid the need to relocate utilities. Additional information (e.g., utility materials, condition, size, soil contamination, paving thickness) also assists the designer and Utility Company in their decisions.

GAS SYMBOLS

SYM	ABV	DESCRIPTION
	GM	GAS METER
	GV	GAS VALVE
	GMH	GAS MAN HOLE
	GVT	GAS VENT
	GR	GAS PRESSURE REGULATOR
	GTP	GAS LINE TEST POINT
	GTF	GAS LINE TAP FARM

ELECTRIC SYMBOLS

	ETB	ELECTRICAL TRANSFORMER BOX
	EMH	ELECTRICAL MAN HOLE
	EHH	ELECTRICAL HAND HOLE
	EPP	ELECTRIC PEDESTAL
	EBX	ELECTRIC BOX
	ESG	ELECTRIC SWITCH GEAR BOX
	EVT	ELECTRIC VAULT
	GL	GROUND /LANDSCAPE LIGHT
	EAB	ELECTRIC AIR BRAKE

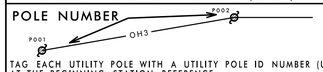
TRAFFIC CONTROL SYMBOLS

	TFV	TRAFFIC SIGNAL CONTROL VAULT
	TFHH	TRAFFIC CONTROL HAND HOLE
	TFJ	TRAFFIC SIGNAL JUNCTION BOX

NONPOTTABLE WATER SYMBOLS

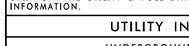
SYM	ABV	DESCRIPTION
	ICV	IRRIGATION CONTROL VALVE
	ICB	IRRIGATION CONTROL BOX
	IRH	IRRIGATION /SPRINKLER HEAD

UTILITY POLE ID NUMBER (UPIN)



TAG EACH UTILITY POLE WITH A UTILITY POLE ID NUMBER (UPIN) STARTING AT THE BEGINNING STATION. REFERENCE UPIN ON THE UTILITY & POLE DATA SHEET WITH APPROPRIATE INFORMATION.

UTILITY INFORMATION TAGS (UIT)



WHEN UTILITY APPURTENANCES NEED DESCRIBING, PLACE A UIT NEXT TO THE CELL OR OUTLINED AREA. PLACE THE INFORMATION ON THE UTILITY DATA SHEET. DESIGNATE THE UTILITY BY THE OWNER NUMBER AND "+U001" CODE IN THE "UTILITY" COLUMN. (IE – T2+U001).

SEWER MANHOLE NUMBERS (SMN)

DESIGNATE EACH SANITARY SEWER MANHOLE WITH A SEWER MANHOLE NUMBER (SMN). REFERENCE THIS SMN ON THE UTILITY DATA SHEET AND LIST ELEVATIONS.

GENERAL ABBREVIATIONS

E	ELECTRIC (POWER)
W	UNDERGROUND WATER
G	UNDERGROUND GAS
PUPS	PALMETTO UTILIY PROTECTION SERVICES
T	TELEPHONE, TELECOMMUNICATION
TV	CABLE TELEVISION
FO	FIBER OPTIC
S	SANITARY SEWER
FS	FORCED SANITARY SEWER, FORCE MAIN
DB	DUCT BANK
TF	TRAFFIC CONTROL UTILITY
UNK	UNKNOWN UTILITY
HP	HYDROGEN PEROXIDE
ST	STEAM LINE
F	FUEL /PETROLEUM LINE
R	RECLAIMED WATER /SLURRY LINE
I	IRRIGATION LINE
DB	DUCT BANK
TNL	TUNNEL
CA	GASES MATERIAL

MATERIAL ABBREVIATIONS

C	COPPER
DI	DUCTILE IRON
S	STEEL
P	PLASTIC
FO	FIBER OPTIC
CI	CAST IRON
S	STEEL
CO	CONCRETE
PV	PVC
VY	VYLON
TC	TERRA COTTA
SWC	STEEL WRAPPED COATED
AC	ASBESTOS CEMENT
TF	TRAFFIC SIGNAL CABLE
GW	GUY WIRE
CNT	CONDUIT

GENERAL NOTES

–ALL GRAVITY SANITARY SEWER LINES ARE CONSIDERED AS LEVEL 'C'.

–ALL AERIAL UTILITY LINES ARE CONSIDERED AS LEVEL 'C'.

–GENERAL UTILITY OWNER INFORMATION SHOWN ON UTILITY TITLE SHEET.

–DETAILED UTILITY INFORMATION SHOWN ON UTILITY & POLE DATA SHEETS.

–UTILITY POLE DATA INFORMATION SHOWN ON UTILITY & POLE DATA SHEETS.

–TEST HOLE SHOWN ON UTILITY PLAN SHEETS AND DETAILED ON TEST HOLE REFERENCE SHEETS.

COMBINATION LINE DEPICTION CODES

PROJECTS THAT COMBINE LEVEL C & D SUE WILL INCLUDE THE FOLLOWING LEVEL QUALITY CODES:

(C) LINE SHOWN DEPICTS QUALITY LEVEL C — (C) — T1

(D) LINE SHOWN DEPICTS QUALITY LEVEL D — (D) — T1

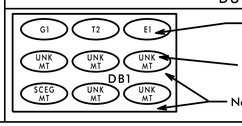
PROJECTS THAT HAVE MULTIPLE SUE OWNERS CAN DEPICT OWNERSHIP WITH THE FOLLOWING CODES:

(A) UTILITY OWNER "X" — (C) — (A) — T1

(B) UTILITY OWNER "Y" — (D) — T1 — (B)

THE OWNERSHIP CODES WILL REFERENCED ON THE TITLE/OWNER SHEET AND THE UTILITY & POLE DATA SHEET.

DUCT BANK DIAGRAM



PLACE DUCT BANK DIAGRAM ON THE UTILITY & POLE DATA SHEET BELOW THE UTILITY & POLE DATA CHART. NOTE THE UUI OF THE DUCT BANK ON THE DIAGRAM. DEPICT THE CORRECT NUMBER OF CONDUITS IN THE DUCT AND THE USAGE OF EACH. MARK EMPTIES (IF KNOWN) WITH OWNER REFERENCE ABBREVIATION AND "MT".

UTILITY INFORMATION ABBERVIATIONS

EOI	END OF INFORMATION	DBR	DIRECT BURIED
EORI	END OF RECORDED INFORMATION	DATFI	DEPICTED ACCORDING TO FIELD INSPECTION
AATUR	UTILITY ABANDONED ACCORDING TO UTILITY RECORDS	EATFI	EMPTY ACCORDING TO FIELD INSPECTION
AATFI	UTILITY ABANDONED ACCORDING TO FIELD INSPECTION	PR	PAIR
EATUR	EMPTY ACCORDING TO UTILITY RECORDS	MT	EMPTY
NAP	NO ASSOCIATED PIPING FOUND FROM STRUCTURE	CAP	CAPACITY
NAC	NO ASSOCIATED CABLES FOUND FROM STRUCTURE	GR	GROUND

UTILITY RELOCATION (U SHEET) LEGEND & NOTES

UTILITY RELOCATION

T1 THRU T10	TELEPHONE
TV1 THRU TV10	CABLE TV
E1 THRU E10	ELECTRIC
TF1 THRU TF5	TRAFFIC CONTROL
W1 THRU W10	WATER
G1 THRU G10	GAS
FS1 THRU FS10	FORCED SEWER
F1 THRU F5	FUEL /PETROLEUM
OH1 THRU OH20	AERIAL UTILITIES
DB1 THRU DB5	DUCT BANK
M1 THRU M5	MISCELLANEOUS

REMOVED UTILITIES

ABANDONED		REMOVED	
Ta		Tr	TELEPHONE
TVa		TVr	CABLE TV
Ea		Er	ELECTRIC
TFa		TFr	TRAFFIC CONTROL
Wa		Wr	WATER
Ga		Gr	GAS
FSa		FSr	FORCED SEWER
Fa		Fr	FUEL /PETROLEUM
		OHr	AERIAL UTILITIES
DBa		DBr	DUCT BANK
Ma		Mr	MISCELANEOUS

UTIL CORD SYMBOLS

SYM	ABV	DESCRIPTION
	UCP	NEW /RELOCATED UTILITY POLE
	URP	REMOVE UTILITY POLE
	UFH	NEW /RELOCATE FIRE HYDRANT
	UTTV	NEW /RELOCATE TELECOMMUNICATION PEDESTAL
	UCG	NEW /RELOCATE GAS STRUTURE
	.	.
	.	.
	.	.
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	.	.

RELOCATION PLAN (U SHEETS) NOTES

U SHEET LINEWORK WILL BE USED WHEN UTILITY RELOCATION PLANS ARE INCLUDED IN THE PLAN SET.

ALL U SHEET UUI LINES WILL BE DETAILED ON THE U SHEET DATA SHEET.

"MISCELANEOUS" UUI U SHEET LINEWORK CAN BE USED FOR ANY UTILITY NOT REPRESENTED WITH A RELOCATION UUI.

ON U SHEETS, EXISTING UTILITIES ARE DEPICTED ON A GREYSCALE.

GENERAL NOTES:

1. HORIZONTAL AND VERTICAL CONTROL REFERENCED TO PROJECT CONTROL FOUND ON REFERENCE SHEET.

2. SERVICES LINES WERE DESIGNATED TO THE SWEEP LIMITS OR DISTRUBUTION POINT.

3. ALL SUBSURFACE UTILITY WORK WAS PERFORMED USING THE ASCE GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITIY DATA CIASCE 38–02

4. PROJECT SCOPE:

PROJECT SPECIFIC NOTES:

SCDOT
South Carolina Department of Transportation

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROAD DESIGN COLUMBIA, S.C.

SUE & UTILITY COORDINATION LEGEND

SUElegend.DGN

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	NO.	SHEET NO.
3	S.C.				

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$$$$$$path$$$$$$$$$filename$$$$$$$$
$$$date$$$$

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

CONSULTANT ENGINEERING
FIRM NAME

ENGINEER's SEAL

FIRM ADRESS 1
FIRM ADRESS 2
FIRM ADRESS 3
CITY, STATE ZIPCODE

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION
SUE PLAN SHEET COLUMBIA, SC

SCALE 1"= RTE. DWG. NO. PN1

BORDER1_50.DGN

UTILITY DATA

POLE DATA

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	NO.	SHEET NO.
3	S.C.				

UTILITY	ALIGNMENT / ROUTE / RD	STATION RANGE	OFFSET RANGE	ITEM IN PLACE	OWNERSHIP	REMARKS / MISC NOTES	POLE	ALIGNMENT / ROUTE / RD	STATION	OFFSET	OWNER	POLE DATA OWNER No	POLE DATA HEIGHT	POLE DATA DIAMETER	POLE DATA MATERIAL	REMARKS / MISC NOTES
U001	S-33	340+00 - 350+00		TELEPHONE CABLE			P001	S-33	340+50							
U002							P002		340+50							
U003		342+25		TELEPHONE MANHOLE			P003		342+00							
							P004		344+00							
S001		342+50		FORCE SEWER MANHOLE		RIM=12.34, FORCE MAIN ACCESS	P005		347+00							
S002		347+00		FORCE SEWER MANHOLE		RIM=12.34, FORCE MAIN ACCESS	P006		348+00							
							P007		349+10							
U004		347+15		WATER MANHOLE			P008		349+10							SIGNAL POLE
							P009									
							P010									SIGNAL POLE
T1	S-33	340+00 - 350+00	60 R	TELEPHONE CABLE			P011									SIGNAL POLE
T2				TELEPHONE FIBER OPTIC			P012									
T3							P013									SIGNAL POLE
T4				DUCT - FO & CABLE			P014									
TV1							P015	LINE A								LIGHT POLE
TV2				FIBER OPTIC			P016	S-33								LIGHT POLE
TF1				TRAFFIC CONTROL			P017									LIGHT POLE
FS1				24" DI			P018	LINE B								LIGHT POLE
W1				30" DI			P019	S-33								LIGHT POLE
R1																
OH1				POWER, TELECOM												
OH2				POWER												
OH3				TELECOM												
OH4																
DB1				EMPTY												

$$user$$
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$$$$date$$$$

UTILITY & POLE DATA TABLE DESCRIPTION

COLUMN	DESCRIPTION	EXAMPLE	COLUMN	DESCRIPTION	EXAMPLE	COLUMN	DESCRIPTION	EXAMPLE
UTILITY	a) Reference the Utility Unique Identifier (UUI) b) Reference Sewer Manhole Number (SMN) c) Reference Utility Information Tags (UIT)	E1, G1, OH15 S001, SMH-02 U001, U05	STATION RANGE	a) Reference the station of the begin & end of linear utility b) Reference the station location of utility appurtenance c) Reference the station location of mahole	01+23 - 45+67 01+23 01+23	OWNERSHIP	Reference utility owner by name or by Owner Ref Abbr From Title Sheet	LOCAL POWER CO LPC
POLE	Reference the Utility Pole ID Number	P001, P25	OFFSET RANGE	a) Reference the offset of the begin & end of linear utility b) Reference the offset location of utility appurtenance c) Reference the offset location of manhole	15R - 15R 25L 25L	POLE DATA	Reference Owner Number, Height, Diameter, and Material of pole	DPC123, 35', 12", WOOD
ALIGNMENT ROUTE RD	Reference the Alignment used for stationing Use design alignments when available ~All geometric data used will be referenced to the project datum~	MAIN ST. MAIN ST RELOC	ITEM IN PLACE	a) Reference utility type, size, & material b) Reference the utility appurtenance type c) Reference manhole	TELEPHONE, COPPER / GAS 6" DI U/G PEDESTAL SEWER MH	REMARKS MISC NOTES	a) Further details including capacity, etc. b) List Sewer rims and invert elevations c) List details and desc, sizes, record information, etc.	RIM=123.45, INV IN=123.45 INV OUT=123.45 RECORDS SHOW INFO

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROAD DESIGN COLUMBIA, S.C.

UTILITY AND POLE DATA SHEET

SCALE 1"= RTE. DWG. NO. PN1

BORDER=_SO.DGN

UTILITY DATA

POLE DATA

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	NO.	SHEET NO.
3	S.C.				

UTILITY	ALIGNMENT/ ROUTE	STATION RANGE	OFFSET RANGE	ITEM IN PLACE	OWNERSHIP	REMARKS / MISC INFORMATION	UPIN	ALIGNMENT/ ROUTE	STATION	OFFSET	OWNER	POLE DATA				MISC INFORMATION
												OWNER No	HEIGHT	DIAMETER	MATERIAL	
NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER

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$$$$$$path$$$$$$$$filename$$$$$$$
$$$date$$$$

UTILITY & POLE DATA TABLE DESCRIPTION

COLUMN	DESCRIPTION	EXAMPLE	COLUMN	DESCRIPTION	EXAMPLE	COLUMN	DESCRIPTION	EXAMPLE
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REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROAD DESIGN COLUMBIA, S.C.

UTILITY AND POLE DATA SHEET

SCALE 1"= RTE. DWG. NO. PN1

BORDER_SD.DGN

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	NO.	SHEET NO.
3	S.C.				

TEST HOLE DATA *

VX HOLE No.	NORTHING	EASTING	REFERENCE ALIGNMENT	STATION	OFFSET LT / RT	TYPE OF UTILITY	OWNER	UTILITY CONDITION	CAPACITY SIZE	MATERIAL COMPOSITION	DEPTH BELOW EXISTING GRADE (MEASURED)	ELEV. OF TOP UTILITY (MEASURED)	ELEV. OF BOTTOM UTILITY (CALCULATED)	MISC NOTES